

Jessica Burnett, Ph.D.

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Key Skills

- Over 7 years experience designing and implementing multi-year programs to answer important scientific questions, generate actionable intelligence for end user organizations, create cross-program synergies, and advance government agency missions.
- An open science ambassador with over 10 years experience in open source scientific software development.
- Passionate relationship builder whose efforts have resulting in NASA being a recognized and sought-after partner for achieving wildlife management and conservation goals in North America.
- Well-published Ph.D. life science researcher with 14 publications in top Earth science journals, 1 book chapter, 3 open source software programs, and numerous government white papers and reports.
- Over a decade of experience in integrating and managing concurrent research projects with an emphasis on Earth and life sciences including wildlife conservation, applied geospatial science, scientific programming, and statistical modeling.
- Judicious communicator with strong interpersonal skills and emotional awareness with proven experience in presenting in person and via audio and video conferencing platforms. Skills honed through over 50 presentations to lay audiences, scientific communities, and decision makers alike.
- Ability to and willingness to learn new skills and perform in a fast-paced environment.

Education

Ph.D. in Natural Resource Sciences

University of Nebraska-Lincoln, Lincoln, NE, US | 2019

15 credit hours of physical life sciences coursework, 52 credit hours of research

M.S. in Wildlife Ecology & Conservation

University of Florida, Gainesville, FL, US | 2015

30 credit hours of life sciences coursework, 20 credit hours of research

B.S. in Wildlife Ecology & Conservation

University of Florida, Gainesville, FL, US | 2013

74 credit hours of life sciences coursework, 5 credit hours of research

A.A. in General Studies

Valencia Community College, Orlando, FL, US | 2009

42 credit hours of life sciences coursework

Professional Experience

National Aeronautics and Space Administration (NASA) Headquarters, Washington, D.C., US

AAAS Fellow, Program Coordinator for Ecological Conservation | September 2022 - Present

40 hours per week

- Spearhead integration of NASA data and technologies into North American wildlife management, bridging resource gaps for conservation organizations. Efforts resulted in new end users, a broadened proposers, and a budding partnership with the Native American Fish and Wildlife Society.
- Develop an understanding of congressional and programmatic budgetary planning and implementation.
- Provide expert guidance in wildlife ecology and conservation, shaping a comprehensive plan for NASA's Ecological Conservation program.
- Represent NASA in high-level, national initiatives such as the National Nature Assessment federal steering committee, the National Plan for Civil Earth Observations, and National Invasive Species Council.

- Cultivate collaborative partnerships with federal, state, and non-governmental conservation organizations and landowners. Efforts resulted in key conservation agencies and organizations soliciting NASA to establish memorandum of understanding to establish long-term commitments.
- Advocate for the application of NASA science in wildlife and natural resource policy through representation in global and domestic science and technology working groups.
- Champion and empower students from underrepresented backgrounds, directing and supervising projects pivotal to program development, evaluation, and expansive outreach initiatives.
- Serve as a technical expert on ecology and conservation issues for data calls from agencies like the White House Office of Science and Technology Policy (OSTP).
- Deliver impactful messages in public forums and organize large-scale events for diverse audiences.
- Evaluate data and software management plans within ROSES proposals to ensure adherence to NASA's open science policy
- Led and serve as a reviewer on several NASA panels across the Earth Science Division.
- Serve as a subject matter expert for natural resource sciences on the Open Grants Initiative's planning activity, *Planning for Open Grants: Fostering a Transparent and Accessible National Research Infrastructure*.
- Improve cross-organizational (cross-element) communications and collaborations with NASA Earth Science Data Systems and the Office of the Chief Science Data Officer, including co-sponsorship of events, writing internal guidance for NASA Open Science Data Policy (SPD-41a), and developing solicitation language to ensure SPD-41a policy compliance.

U.S. Geological Survey (USGS), Biogeographic Sciences Branch, Denver, Colorado, US

Research Ecologist and Data Scientist | August 2019 - August 2022

40 hours per week

- Actively participated in Earth Science Information Partnership (ESIP), resulting in new collaborations and year-long project funded by NASA and USGS through the ESIP Lab.
- Received cash awards for exceptional performance on all annual reviews.
- Key player in establishing cross-organization relationships to broaden client use of division's research assets, including remotely sensed biogeographic data products, high performance computing resources, and technical expertise.
- Participated in several initiatives focused on diversifying the scientific professional and academic communities including the Disabled in STEM, Skype a Scientist, and Letters to a Prescientist programs.
- Published 3 peer-reviewed papers in top Earth Science journals, including 1 influential article outlining key priorities for synthesis in environmental research.
- Developed and published well-known, open-source software to enable applications of an important USGS data asset to natural resource management and wildlife conservation activities.

University of Nebraska-Lincoln (UNL), Lincoln, Nebraska, US

Statistical and Applied Ecology Graduate Research Assistant | August 2015 - July 2019 40 hours per week

- Created and led week-long workshop for the end users at the state of Nebraska's natural resource agency, focusing on technologies for applied statistics, data management, and applications for geospatial inference.
- Use and educate peers and mentors on using the university's high performance and cloud computing resources and on contributing to open science through open source scientific programming, reproducible workflows, and the FAIR (Findable, Accessible, Interoperable, Reusable) and CARE (Collective benefit, Authority to control, Responsibility and Ethics) principles.
- Spearheaded the development of department-level and university-level activities focused on advancing awareness around and resources for women and underrepresented groups in science, including policy development, professional development and training, and university-level investments. Efforts resulted in the University President investing in the Association for Women in Science as an institutional member.
- Managed multiple, concurrent research projects with international and domestic collaborators, leading outreach efforts to improve applications of products for natural resource management at U.S. military bases.

- Served as a mentor to several graduate and high school students while helping them set their own professional and personal development goals.

International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

Visiting Researcher for Applied Systems Analysis | April 2018 - August 2018 40 hours per week

- First-time recipient (of over 500 international applicants) of the renowned Young Scholar Summer Program fellowship, with financial support competitively awarded by the U.S. National Academy of Sciences.
- Designed and led collaborative research with applied mathematicians and Earth scientists, resulting in multiple international presentations, a peer-reviewed journal article, and software releases.

University of Florida (UF), Gainesville, Florida, US

Invasion and Avian Ecology Graduate Research Assistant | August 2013 - August 2015 40 hours per week

- Sought and received funding from the local police department and the University of Florida to enable nature-based activities, including new on-site trail development, at a local at-risk-of-recidivism youth program.
- Designed and conducted research resulting in 3 publications and becoming a top expert on urban bird populations.
- Taught and mentored undergraduate students, including developing workshops and lectures on the topics of scientific programming, invasive species, and geospatial modeling.
- Developed and tracked short- and long-term budgets for a variety of projects to ensure project efficiency and success.

Personal Interests

- Enjoys competitive sports including volleyball and disc golf
- Recreational baker who often shares new creations with co-workers and friends
- Likes to play card, board, word, and video games
- Volunteers as a mentor with science diversity initiatives including Disabled in STEM, Letters to a Pre-scientist, and Skype a Scientist
- Enjoys casually biking around town, especially when the destination is a coffee shop, library or thrift store

Notable Awards & Achievements

- First-time applicant recipient of the prestigious AAAS Science & Technology Policy Fellowship
- First-time applicant recipient of the U.S. Geological Survey's coveted Mendenhall Postdoctoral Research Fellowship
- Recipient of over several competitive science scholarships, fellowships, and awards totaling over \$350,000 USD
- Developed and taught over 15 professional workshops and academic courses in topics including Scientific Programming, Life Sciences, Ornithology, and Ecology

Publications

1. B. S. Halpern, C. Boettiger, M. C. Dietze, J. A. Gephart, P. Gonzalez, N. B. Grimm, P. M. Groffman, J. Gurevitch, S. E. Hobbie, K. J. Komatsu, others, Priorities for synthesis research in ecology and environmental science. *Ecosphere*. **14**, e4342 (2023).
2. C. Allen, J. L. Burnett, C. P. Roberts, D. Twidwell, D. G. Angeler, SERDP project RC-2510: Global change, vulnerability and resilience: Management options for an uncertain future (2019).
3. J. L. Burnett, R. Dale, C.-Y. Hou, G. Palomo-Munoz, K. S. Whitney, S. Aulenbach, R. S. Bristol, D. Valle, T. P. Wellman, Ten simple rules for creating a scientific web application. *PLOS Computational Biology*. **17**, e1009574 (2021).

4. R. A. Erickson, J. L. Burnett, M. T. Wiltermuth, E. A. Bulliner, L. Hsu, Paths to computational fluency for natural resource educators, researchers, and managers. *Natural Resource Modeling*. **34**, e12318 (2021).
5. J. L. Burnett, C. R. Allen, "Continental analysis of invasive birds: North america" in *Global trends and impacts of alien invasive birds*, C. T. Downs, L. A. Hart, Eds. (CABI, Wallingford, U.K., 2020).
6. J. L. Burnett, L. Wszola, G. Palomo-Muñoz, bbsAssistant: An r package for downloading and handling data and information from the north american breeding bird survey. *Journal of Open Source Software*. **4**, 1768 (2019).
7. J. L. Burnett, thesis, University of Nebraska-Lincoln (2019).
8. C. P. Roberts, D. Twidwell, J. L. Burnett, V. M. Donovan, C. L. Wonkka, C. L. Bielski, A. S. Garmestani, D. G. Angeler, T. Eason, B. W. Allred, M. O. Jones, D. E. Naugle, S. M. Sundstrom, C. R. Allen, Early warnings for state transitions. *Rangeland Ecology & Management*. **71**, 659–670 (2018).
9. V. M. Donovan, J. L. Burnett, C. H. Bielski, H. E. Birge, R. Bevans, D. Twidwell, C. R. Allen, Social-ecological landscape patterns predict woody encroachment from native tree plantings in a temperate grassland. *Ecology and Evolution*. **8**, 9624–9632 (2018).
10. F. A. La Sorte, C. A. Lepczyk, J. L. Burnett, A. H. Hurlbert, M. W. Tingley, B. Zuckerberg, Opportunities and challenges for big data ornithology. *Condor*. **120**, 414–426 (2018).
11. W. C. Chuang, A. Garmestani, T. N. Eason, T. L. Spanbauer, H. B. Fried-Petersen, C. P. Roberts, S. M. Sundstrom, J. L. Burnett, D. G. Angeler, B. C. Chaffin, L. Gunderson, D. Twidwell, C. R. Allen, Enhancing quantitative approaches for assessing community resilience. *Journal of Environmental Management*. **213**, 353–362 (2018).
12. J. L. Burnett, L. P. Kevin, A. Wong, C. R. Allen, D. M. Haak, B. J. Stephen, D. R. Uden, Thermal tolerance limits of the Chinese mystery snail (*bellamya chinensis*): Implications for management. *American Malacological Bulletin*. **36**, 140–144 (2018).
13. J. L. Burnett, C. P. Roberts, C. R. Allen, M. B. Brown, M. P. Moulton, Range expansion by *Passer montanus* in North America. *Biological Invasions*. **19**, 5–9 (2017).
14. C. R. Allen, H. E. Birge, S. Bartelt-Hunt, R. A. Bevans, J. L. Burnett, B. A. Cosens, X. Cai, A. S. Garmestani, I. Linkov, E. A. Scott, M. D. Solomon, D. R. Uden, Avoiding decline: Fostering resilience and sustainability in midsize cities. *Sustainability*. **8** (2016), doi:10.3390/su8090844.
15. J. L. Burnett, K. E. Sieving, Songbird distress calls as an improved method for detecting red-shouldered hawks (*Buteo lineatus*). *Florida Field Naturalist*. **44**, 157–168 (2016).
16. J. L. Burnett, M. P. Moulton, Recent trends in house sparrow (*passer domesticus*) distribution and abundance in Gainesville, Alachua county, Florida. *Florida Field Naturalist*. **43**, 167–172 (2015).

Select Invited Presentations

1. NASA Earth Science Division: Opportunities for the Next Generation of Wildlife Professionals (presentation and panelist). *The Wildlife Society*, Louisville, KY, 2023
2. NASA Earth Science for Wildlife Ecology and Conservation. *USGS Ecosystems Missions Area leadership*, Virtual, 2023
3. NASA Earth Science for Forest Ecology, Conservation, and Fire Management. *Society of American Foresters*, Sacramento, CA, 2023
4. An overview of state fish and wildlife agency use of federal geospatial data. *Association of Fish & Wildlife Agencies annual meeting*, Calgary Canada, 2023
5. Satellite and airborne remote sensing for wildlife conservation in the West. *Western Association of Fish & Wildlife Agencies summer meeting*, Santa Fe, NM, 2023
6. Satellite remote sensing for freshwater fisheries and aquatic sciences. *North American Wildlife and Natural Resources Conference*, St. Louis, MO, 2023
7. Overview of NASA Earth Science Division Ecological Conservation Applications Area for USGS and US Fish & Wildlife Service. *Patuxent Wildlife Research Center and Refuge*, Laurel, MD, 2022
8. Users and uses of the North American Breeding Bird Survey. Cross-organizational presentation at the U.S. Geological Survey, Denver, CO, 2022

9. Integrating data and information to enhance the digital efficiency of wildlife conservation and management. *North American Ornithological Conference*, Washington, D.C., 2020
10. Regime Detection Measures for the Practical Ecologist, Department of Wildlife Ecology & Conservation, University of Florida, Gainesville, FL, 2019
11. Detecting abrupt change in bird community time series using distance traveled. *Association for Women in Math Biology Symposium*, Special session "Current Challenges in Mathematical Biology", Houston, TX, 2019
12. Decline of the Once-Ubiquitous House Sparrow in North America. *Nebraska Invasive Species Council*, Lincoln, NE, 2015 ### Contributed
13. **Burnett, J.L.** Advances in airborne and satellite remote sensing for wildlife ecology and management. *The Wildlife Society*, Oral presentation and panelist. Louisville, KY, 2023
14. **Burnett, J.L.**, N.B. Price, and A.J. Tyre. A novel method for tracking ecosystem trajectory and abrupt change in space-time: distance traveled. *International Association for Landscape Ecology*, Oral presentation. Fort Collins, CO, 2019
15. **Burnett, J.L.**, R. Crystal-Ornelas, D. Fogarty, K. Hogan, C.R. Allen, M. Bomberger Brown, D. Twidwell, and C.A. Lepczyk. Impacts of non-native birds on native wildlife in urban ecosystems: where is the evidence? *Natural Areas Conference*, Oral presentation. Indiana, 2018
16. **Burnett, J.L.**, B. Fath, A. Rodenkova. Advances in ecological regime shift detection, *International Institute for Applied Systems Analysis*, Oral presentation. Laxenburg, Austria, 2018
17. **Burnett, J.L.**, N.B. Price, A.J. Tyre, T.J. Hefley, C.R. Allen, T. A. Eason, D.G. Angeler, and D. Twidwell. Community velocity as a regime shift detection method. *Great Plains Grassland Summit*, Poster presentation. Denver, Colorado, 2018
18. **Burnett, J.L.**, L. Wszola, N. Mirochnitchenko, E. Stuber, M. Bomberger Brown, and J.P. Carroll. Gray partridge distribution in North America: Changing landscapes and environment for an introduced species. 33rd International Congress of the International Union of Game Biologists (IUGB), Oral presentation delivered by JPC, Montpellier, France, 2017
19. **Burnett, J.L.**, N.B. Price, A.J. Tyre, T.J. Hefley, C.R. Allen, T. A. Eason, D.G. Angeler, and D. Twidwell. System trajectory and Fisher information as early-warning indicators of ecological regime shifts. *Resilience 2017: Resilience Frontiers for Global Sustainability*, Poster presentation. Stockholm, Sweden, 2017
20. **Burnett, J.L.**, N.B. Price, A.J. Tyre, T.J. Hefley, C.R. Allen, T. A. Eason, D.G. Angeler, and D. Twidwell. System trajectory and Fisher information as early-warning indicators of ecological regime shifts. *Ecological Society of America*, Poster presentation. Portland, OR, 2017
21. **Burnett, J.L.**, Roberts, C.P., Allen, C.R., Angeler, D.G., Twidwell, D., and Tyre, A.J. Ecological Regime Shifts in the Central Great Plains. *Great Plains Symposium*, Oral presentation. Nebraska Innovation Campus, Lincoln, NE, 2017
22. **Burnett, J.L.**, Roberts, C.P., Allen, C.R., Angeler, D.G., Twidwell, D., and Tyre, A.J. Using Big Data to Detect Regime Shifts in Space and Time. *North American Ornithological Conference VI*, Poster presentation. Washington, D.C., 2016
23. **Burnett, J.L.**, Moulton, M. P., Sieving, K.E., Avery, M., and Robinson, S.K. Are House Sparrow declines a byproduct of urban greening? *Southeastern Ecology and Evolution Conference*, Oral presentation. University of Georgia, Athens, GA, 2015
24. **Burnett, J.L.**, Moulton, M. P., Sieving, K.E., Avery, M.L., and Robinson, S.K. Are House Sparrow declines a byproduct of urban greening? *American Ornithologists' Union and Cooper Ornithological Society Annual Meeting*, Poster presentation. Norman, OK, 2015
25. **Burnett, J.L.**, Moulton, M.P., and Sieving, K.E. House sparrow: the decline of a once ubiquitous, invasive species. *Florida Chapter of The Wildlife Society Annual Conference*, Poster presentation. Safety Harbor, FL, 2014
26. **Burnett, J.L.**, Moulton, M. P., Sieving, K.E., Avery, M.L., and Robinson, S.K. House Sparrow decline and distribution in North Central Florida. *Florida Cooperative Fish and Wildlife Research Unit annual cooperators meeting*, Poster presentation. Gainesville, FL, 2014
27. **Burnett, J.L.** and Sieving, K.E. Detecting birds of prey using tufted titmouse distress calls. *USGS Florida Cooperative Fish and Wildlife Research Unit Committee Meeting*, Poster presentation. Gainesville, FL, 2013
28. **Burnett, J.L.** and Sieving, K.E. Do actual and perceived risks of small forest birds align? *Florida Ornithological Society Conference*, Oral presentation, St. Petersburg, FL, 2013
29. **Burnett, J.L.** and Sieving, K.E. Perceived predation risks of small forest birds. *Association of Field Ornithologists Annual Conference*, Poster presentation. Venus, FL, 2013

Conferences, Workshops & Symposia Coordination

1. Applied Earth Observations Innovation Partnership annual workshop (~200 attendees). *Workshop organizer*, Ann Arbor, 2024
2. Conservation decision-making with incomplete information, Road to Recovery workshop. *Panel organizer and moderator* (>150 attendees), National Conservation Training Center, 2024
3. NASA Biodiversity & Ecological Conservation annual science and applications team meeting (~250 attendees, ~75 sessions). *Conference co-organizer*, Washington, D.C., 2024
4. NASA Earth Science Data and Compute workshop. *Workshop organizer and moderator* (~75 attendees), College Park, MD, 2023
5. NASA Carbon Cycle and Ecosystems Joint Science Workshop. *Conference co-organizer and moderator* (~500 attendees), College Park, MD, 2023
6. Applied Earth Observations Innovation Partnership annual workshop. *Workshop co-organizer* (~200 attendees), Salt Lake City, UT, 2023 ## Select symposia
7. Applied Earth Observations Innovation Partnership monthly webinar series (2023-2024). *Workshop organizer*, Ann Arbor, 2024
8. Advances in airborne and satellite remote sensing for wildlife ecology and management. *Session organizer, moderator, and presenter*, The Wildlife Society annual conference, 2023
9. Bridging the gap between science and decision-making through the rapid prototyping of decision support tools. Co-organizer with D. Valle and L.S. Wszola. *Session organizer*, Ecological Society of America annual conference, 2020
10. Using the integrated modelling framework to bridge science and decision making: advances, applications, and opportunities. Co-organizer with J.A. Royle. *Session organizer, moderator, and presenter*, The Wildlife Society annual conference, 2020
11. Opportunities and Challenges in Big Data Ornithology. *Session co-organizer*, North American Ornithological Conference V, 2016